	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition	Errors
1	BRS	L1	41	galectin-3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/17 14:51			0
2	BRS	L3	8	2 same binding	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/17 14:54			0
3	BRS	L2	14	(inhibitor or inhibit) same 1	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/17 14:58			0
4	BRS	L4	6920	extracellular adj matrix	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/17 14:59			0
5	BRS	L6	1	5 same (inhibitor or inhibit)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/17 15:00			0
6	BRS	L5	7	1 same 4	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/17 15:01			0
7	BRS	L7	2134	(glomerular adj nephritis) or (diabetic adj nephropathy) or (tissue adj fibrosis)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/17 15:03			0
8	BRS	L8	1	7 same 1	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/06/17 15:03			0

=> d his

(FILE 'HOME' ENTERED AT 15:05:48 ON 17 JUN 2002)

FILE 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH, AGRICOLA' ENTERED AT
15:06:14 ON 17 JUN 2002
L1 1735 S GALECTIN-3
L2 148171 S EXTRACELLULAR MATRIX
L3 213 S L1 (P) L2
L4 73 S L3 (P) INHIBIT?
L5 18 DUPLICATE REMOVE L4 (55 DUPLICATES REMOVED)
L6 107 S L1 (A) BINDING
L7 34 S L6 (P) INHIBIT?
L8 10 DUPLICATE REMOVE L7 (24 DUPLICATES REMOVED)
L9 7 S L8 NOT L5
L10 1735 S GALECTIN 3
L11 35880 S (GLOMERULAR NEPHRITIS) OR (DIABETIC NEPHROPATHY) OR (TISSUE F
L12 1086 S L11 (P) L2
L13 2 S L12 (P) L1
L14 2 DUPLICATE REMOVE L13 (0 DUPLICATES REMOVED)
L15 0 S L14 NOT (L5 OR L9)

=> log y

```
FILE 'HOME' ENTERED AT 15:05:48 ON 17 JUN 2002

=> file medline caplus biosis embase scisearch agricola
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     0.21       0.21

FILE 'MEDLINE' ENTERED AT 15:06:14 ON 17 JUN 2002

FILE 'CAPLUS' ENTERED AT 15:06:14 ON 17 JUN 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'BIOSIS' ENTERED AT 15:06:14 ON 17 JUN 2002
COPYRIGHT (C) 2002 BIOLOGICAL ABSTRACTS INC.(R)

FILE 'EMBASE' ENTERED AT 15:06:14 ON 17 JUN 2002
COPYRIGHT (C) 2002 Elsevier Science B.V.  All rights reserved.

FILE 'SCISEARCH' ENTERED AT 15:06:14 ON 17 JUN 2002
COPYRIGHT (C) 2002 Institute for Scientific Information (ISI) (R)

FILE 'AGRICOLA' ENTERED AT 15:06:14 ON 17 JUN 2002

=> s galectin-3
L1         1735 GALECTIN-3

=> s extracellular matrix
L2       148171 EXTRACELLULAR MATRIX

=> s l1 (p) l2
L3          213 L1 (P) L2

=> s l3 (p) Inhibit?
L4           73 L3 (P) INHIBIT?

=> duplicate remove l4
DUPLICATE PREFERENCE IS 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH'
KEEP DUPLICATES FROM MORE THAN ONE FILE?  Y/(N):n
PROCESSING COMPLETED FOR L4
L5            18 DUPLICATE REMOVE L4 (55 DUPLICATES REMOVED)

=> d l5 1-18 ibib abs

L5   ANSWER 1 OF 18     MEDLINE                          DUPLICATE 1
ACCESSION NUMBER:   2002286224     MEDLINE
DOCUMENT NUMBER:    22021193   PubMed ID: 11981832
TITLE:              Galectin-3 modulates carbohydrate-dependent thymocyte
                    interactions with the thymic microenvironment.
AUTHOR:             Villa-Verde Dea Maria Serra; Silva-Monteiro Elizangela;
                    Jasiulionis Miriam G; Farias-De-Oliveira Desio Aurelio;
                    Brentani Ricardo Renzo; Savino Wilson; Chammas Roger
CORPORATE SOURCE:   Laboratory on Thymus Research, Department of Immunology,
                    Oswaldo Cruz Institute, Oswaldo Cruz Foundation, Rio de
                    Janeiro, Brazil.
SOURCE:             EUROPEAN JOURNAL OF IMMUNOLOGY, (2002 May) 32 (5) 1434-44.
                    Journal code: 1273201. ISSN: 0014-2980.
PUB. COUNTRY:       Germany: Germany, Federal Republic of
                    Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:           English
FILE SEGMENT:       Priority Journals
ENTRY MONTH:        200206
ENTRY DATE:         Entered STN: 20020528
                    Last Updated on STN: 20020615
                    Entered Medline: 20020614
AB   The process of thymocyte differentiation occurs within the context of the
     thymic microenvironment, in which T cell precursors interact with thymic
     microenvironmental cells and   ***extracellular***     ***matrix***  .
     Here we studied the expression of   ***galectin***  -  ***3***  , a
```

beta-galactoside binding lectin, in the thymus of young adult mice. ***Galectin*** - ***3*** was found mainly in the medul and to a lesser extent in the cortex. We further showed that distinct microenvironmental elements, such as thymic epithelial cells, the epithelial component of thymic nurse complexes and phagocytic cells of the thymic reticulum produce, secrete and accumulate ***galectin*** - ***3*** on the cell surface. Functionally, ***galectin*** - ***3*** -enriched medium ***inhibited*** in vitro thymocyte interactions with thymic microenvironmental cells, accelerated the release of thymocytes from thymic nurse cells and ***inhibited*** the reconstitution of these lymphoepithelial complexes. These effects were blocked by exogenous lactose (Galbeta1-4Glc), but not melibiose (Galalpha1-6Glc), and by a monospecific anti- ***galectin*** - ***3*** antibody. Recombinant ***galectin*** - ***3*** also ***inhibited*** thymocyte/thymic epithelial cell interactions. Our data indicate that intrathymically produced ***galectin*** - ***3*** disrupts thymocyte/microenvironmental cell interactions, thus acting as a de-adhesion molecule.

L5 ANSWER 2 OF 18 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:179383 CAPLUS
TITLE: N.epsilon.-(carboxymethy)lysine-induced mesangial cell activation
AUTHOR(S): Lim, Hyun Jin; Song, Jaesook; Ha, Hunjoo; Lee, Hi Bahl
CORPORATE SOURCE: Department of Internal Medicine, Hyonam Kidney Laboratory, College of Medicine, Soon Chun Hyang University, Seoul, S. Korea
SOURCE: Taehan Sinjang Hakhoechi (2002), 21(1), 20-28
CODEN: TSHACY; ISSN: 1225-0015
PUBLISHER: Korean Society of Nephrology
DOCUMENT TYPE: Journal
LANGUAGE: Korean
AB Background:Advanced glycation end products (AGE) are independent risk factors in the development and progression of diabetic nephropathy. Receptor for AGE(RAGE) is considered the main receptor involved in AGE-induced cell activation. ***Galectin*** - ***3*** , another AGE receptor, has recently been found up-regulated in mesangial cells(MC) cultured under high glucose and in diabetic rat kidneys. N.epsilon.-(carboxymethyl)lysine(CML) is a well characterized AGE but its role in MC activation is unknown. The present study examd. the effects of CML on MC proliferation and ***extracellular*** ***matrix*** (ECM) secretion. Methods: Synchronized rat MC were stimulated with different concns. of CML-bovine serum albumin(BSA), control BSA, and transforming growth factor-.beta.1(TGF-.beta.1) for up to 72 h. Cell proliferation was measured by [3H]-thymidine incorporation. Fibronectin, TGF-.beta.1, plasminogen activator ***inhibitor*** (PAI)-1 secreted into the media and RAGE and ***galectin*** - ***3*** expression in MC were measured by Western blot anal. and ELISA Results: 1,000 .mu.g/mL of CML-BSA decreased [3H]-thymidine incorporation by MC at 48 h and 10 ng/mL TGF-.beta.1 at 24 and 48 h. CML-BSA 100 and 1,000 pg/mL, control BSA 1,000 pg/mL, and TGF 8 10 ng/mL increased fibronectin secretion at 48 h CML-BSA up to 1,000 pg/mL did not affect TGF B1 or PAI-1 secretion. TGF-.beta.1 10 ng/mL, however, significantly increased PAI-1 secretion. Cultured MC expressed both RAGE and galec- tin-3. CML-BSA 100 .mu.g/mL upregulated ***galectin*** - ***3*** expression. Conclusion: CML-BSA decreased MC proliferation and increased fibronectin secretion, suggesting that CML may lead to ECM accumulation and glomerulosclerosis in diabetic animals. MC express RAGE and ***galectin*** - ***3*** constitutively and CML-induced ***galectin*** - ***3*** upregulation may have a role in AGE-induced MC activation.

L5 ANSWER 3 OF 18 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 2001690890 MEDLINE
DOCUMENT NUMBER: 21599405 PubMed ID: 11735123
TITLE: Galectin-3 mediates the endocytosis of beta-1 integrins by breast carcinoma cells.
AUTHOR: Furtak V; Hatcher F; Ochieng J
CORPORATE SOURCE: Department of Biochemistry, Meharry Medical College, 1005 D. B. Todd Boulevard, Nashville, Tennessee 37208, USA.
CONTRACT NUMBER: 2G1RR03032 (NCRR)
3 P30 CA68485 (NCI)
GM 08037 (NIGMS)

SOURCE: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (2001 Dec 14) 289( ) 845-50.
Journal code: 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200202
ENTRY DATE: Entered STN: 20011213
Last Updated on STN: 20020222
Entered Medline: 20020221

AB ***Galectin*** - ***3*** , a beta-galactoside binding lectin, has been demonstrated to play a key role(s) in cell to ***extracellular*** ***matrix*** interaction. The precise mechanism by which it modulates cellular adhesion is presently unclear and warrants further studies. We hereby report that ***galectin*** - ***3*** mediates the endocytosis of beta-1 integrins in a lactose-dependent manner. Interestingly we observed that ***galectin*** - ***3*** was also rapidly internalized by the cells via the same pathway and the internalization was completely blocked by lactose. The endocytosis process was temperature dependent and was ***inhibited*** by filipin but not chlorpromazine. The endocytosis of ***galectin*** - ***3*** and beta-1 integrins by the cells was accompanied by rapid cell spreading due to cytoskeletal reorganization. The data suggest a novel mechanism by which ***galectin*** - ***3*** and beta-1 integrins are internalized into breast carcinoma cells via a cavaleolae-like pathway of endocytosis.

L5 ANSWER 4 OF 18 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 2002031556 MEDLINE
DOCUMENT NUMBER: 21595829 PubMed ID: 11759230
TITLE: [Rheumatoid arthritis: new developments in the pathogenesis with special reference to synovial fibroblasts].
Die Rheumatoide Arthritis: Neuentwicklungen in der Pathogenese unter besonderer Berucksichtigung der synovialen Fibroblasten.
AUTHOR: Seemayer C A; Distler O; Kuchen S; Muller-Ladner U; Michel B A; Neidhart M; Gay R E; Gay S
CORPORATE SOURCE: WHO-Collaborating Center for Molecular Biology and Novel Therapeutic Strategies of Rheumatic Diseases, Department of Rheumatology, University Hospital Zurich, Gloriastrasse 25, 8091 Zurich, Switzerland.
SOURCE: ZEITSCHRIFT FUR RHEUMATOLOGIE, (2001 Oct) 60 (5) 309-18.
Ref: 67
Journal code: 0414162. ISSN: 0340-1855.
PUB. COUNTRY: Germany: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: German
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200201
ENTRY DATE: Entered STN: 20020124
Last Updated on STN: 20020131
Entered Medline: 20020130

AB Rheumatoid arthritis (RA) is a chronic inflammatory disease, which is mainly characterized by synovial hyperplasia, pathological immune phenomena and progressive destruction of the affected joints. Various cell types are involved in the pathogenesis of RA including T cells, antigen presenting cells, and endothelial cells. Recent experimental evidence suggests that the CD40/CD154 system might play an important role in the development of RA. Our experimental approach focuses on RA synovial fibroblasts (RA-SF) that are able to destroy articular cartilage independent of inflammation. To elucidate the specific role of those cells in RA pathophysiology the following questions are currently addressed: 1. Which mechanisms do activate the RA-SF? 2. How do the activated RA-SF attach to the cartilage? 3. How do RA-SF destroy cartilage and bone? Which mechanisms do activate the RA-SF? The process of activation is poorly understood. It is unclear, how far the synovial hyperplasia of RA resembles tumor diseases. Along this line some contradictory results exist concerning the role of the tumor suppressor protein p53. Some investigations could show the expression of p53 in the synovial lining

including p53 mutations in RA synovium and in RASF, while other research groups could not confirm these data. Our group has demonstrated that the tumor suppressor PTEN was less expressed in the synovial lining of RA than in normal synovium, but no PTEN mutations could be found in the RA-SF. In addition, the in vivo and in vitro expression of the anti-apoptotic molecule sentrin suggests a functional resistance of RA-SF to undergo apoptosis. Although it is still unclear, whether certain viruses or viral elements are involved in the pathogenesis of RA (cause, consequence or coincidence?), certain viruses could play a role in the pathogenesis of RA. The endogenous retroviral element L1 was found to be expressed in the synovial lining, at sites of invasion as well as in RA-SF grown in vitro. Moreover, the data indicate that after the initial activation of L1 downstream molecules such as the SAP kinase 4, the met-protoonocogene and the ***galectin*** - ***3*** binding protein are upregulated. How do the activated RA-SF attach to the cartilage? It has been suggested that integrins mediate the attachment of RA-SF to fibronectin rich sites of cartilage. Intriguingly, other adhesion molecules such as the vascular cellular adhesion molecule-1 (VCAM) and CS-1, a splice variant of fibronectin, are synthesized by RA-SF. By binding to these adhesion molecules, lymphocytes that express the integrin VLA-4 could be stimulated and thereby maintain the inflammatory process. Osteopontin is an ***extracellular*** ***matrix*** protein, which is associated with matrix adhesion and metastasis in tumors. In RA synovium, osteopontin was detectable in the synovial lining and at sites of invasion. How do RA-SF destroy cartilage and bone? The destruction of cartilage and bone in RA is mediated by matrix metalloproteinases (MMPs) and cathepsins. MMPs exist as secreted and as membrane bound forms. In vitro models are being developed to simulate the invasive process of RA-SF. In an in vitro model developed in our laboratory, the treatment of RA-SF with anti-CD44 or anti-interleukin-1 (IL-1) minimized matrix degradation of RA-SF. On the other hand, co-culture of RA-SF and U937 cells as well as application of interleukin-1 beta (IL-1 beta) or tumor necrosis factor alpha (TNF alpha) increased the invasiveness of RA-SF. Gene transfer of bovine pancreas trypsin ***inhibitor*** (BPMI) or interleukin-10 (IL-10) reduced the invasion of RA-SF, while transduction of interleukin-1 receptor antagonist (IL-1Ra) was chondroprotective. Double gene transfer of IL-10 and IL-1Ra resulted in both ***inhibition*** of invasion and chondroprotection.

L5 ANSWER 5 OF 18 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:116925 CAPLUS
DOCUMENT NUMBER: 132:165131
TITLE: Pharmaceutical composition having inhibitory effect on overproduction and accumulation of extracellular matrix
INVENTOR(S): Sasaki, Satoshi; Sumi, Yoshihiko; Hughes, Reginald Colin
PATENT ASSIGNEE(S): Teijin Limited, Japan
SOURCE: PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000007624	A2	20000217	WO 1999-JP4238	19990805
WO 2000007624	A3	20000622		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9950653	A1	20000228	AU 1999-50653	19990805
EP 1104307	A2	20010606	EP 1999-935073	19990805
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				

PRIORITY APPLN. INFO.: JP 1998-233499 A 19980806

WO 1999-JP4238 W 19990805

AB A pharmaceutical compn. ha[redacted]g an ***inhibitory*** effe[redacted]on the overprodn. and the accumulation of ***extracellular*** ***matrix*** , said compn. comprising as an active ingredient a compd. that ***inhibits*** the biol. activity of ***galectin*** - ***3*** , which pharmaceutical compn. can serve as a therapeutic or preventive agent for glomerular nephritis, diabetic nephropathy or tissue fibrosis, as well as the use of said compd. for the prodn. of pharmaceuticals for the above-mentioned use, and a method for ***inhibition*** of the overprodn. and accumulation of the ***extracellular*** ***matrix*** .

L5 ANSWER 6 OF 18 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 2000437353 MEDLINE
DOCUMENT NUMBER: 20312836 PubMed ID: 10852818
TITLE: Galectin-8 binding to integrins inhibits cell adhesion and induces apoptosis.
AUTHOR: Hadari Y R; Arbel-Goren R; Levy Y; Amsterdam A; Alon R; Zakut R; Zick Y
CORPORATE SOURCE: Department of Molecular Cell Biology, The Weizmann Institute of Science, Rehovot 76100, Israel. lizick@weizmann. weizmann.ac.il.
SOURCE: JOURNAL OF CELL SCIENCE, (2000 Jul) 113 (Pt 13) 2385-97. Journal code: 0052457. ISSN: 0021-9533.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; Space Life Sciences
ENTRY MONTH: 200009
ENTRY DATE: Entered STN: 20000928
Last Updated on STN: 20000928
Entered Medline: 20000918

AB The interaction of cells with the ***extracellular*** ***matrix*** regulates cell adhesion, motility, growth, survival and differentiation through integrin-mediated signal transduction. Here we demonstrate that galectin-8, a secreted mammalian (beta)-galactoside binding protein, ***inhibits*** adhesion of human carcinoma (1299) cells to plates coated with integrin ligands, and induces cell apoptosis. Pretreatment of the cells with Mn(2+), which increases the affinity of integrins for their ligands, abolished the ***inhibitory*** effects of galectin-8. The ***inhibitory*** effects of galectin-8 were specific and were not mimicked by plant lectins or other galectins (galectin-1 and ***galectin*** - ***3***). In accordance with its anti-adhesive effects, transfection of galectin-8 cDNA into 1299 cells significantly reduced (by 75%) colony formation, when compared to the number of colonies formed by cells transfected with an empty vector. Affinity chromatography over immobilized galectin-8 indicated that few membrane proteins interacted with galectin-8 in a sugar-dependent manner. Microsequencing and western immunoblotting revealed that (alpha)(3)(beta)(1)integrin derived from 1299 as well as other cells (e.g. HeLa and human endothelial cells) is a major galectin-8 binding-protein. Furthermore, immunoprecipitation and immunohistochemical studies suggested that endogenous galectin-8, secreted from 1299 cells, forms complexes with (alpha)(3)(beta)(1) integrins expressed on the surface of 1299 cells. Galectin-8 also interacts with other members of the integrin family, like (alpha)(6)(beta)(1)integrins. In contrast, galectin-8 only minimally interacts with (alpha)(4)or (beta)(3)integrins. We propose that galectin-8 is an integrin binding-protein that interacts to a different extent with several, but not all members of the integrin family. Binding of galectin-8 modulates integrin interactions with the ***extracellular*** ***matrix*** and thus regulates cell adhesion and cell survival.

L5 ANSWER 7 OF 18 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 2001116407 MEDLINE
DOCUMENT NUMBER: 20521978 PubMed ID: 11068143
TITLE: Stabilization of neurites in cerebellar granule cells by transglutaminase activity: identification of midkine and galectin-3 as substrates.
AUTHOR: Mahoney S A; Wilkinson M; Smith S; Haynes L W
CORPORATE SOURCE: School of Biological Sciences, University of Bristol, Woodland Road, Bristol BS8 1UG, UK.

SOURCE: NEUROSCIENCE (2000) 101 (1) 141-55.
Journal cod[redacted]7605074. ISSN: 0306-4522.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200102
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010215

AB The formation of covalent isopeptide cross-links between cell surface protein molecules by the enzyme transglutaminase C influences cell adhesion and morphology. Retinoid-inducible cross-linking activity associated with this enzyme is present in the developing rat cerebellar cortex [Perry M. J. M. et al. (1995) Neuroscience 65, 1063-1076]. A monoclonal antibody was used to localize transglutaminase C to granule neurons in the developing cerebellar cortex. The enzyme was inducible by retinoic acid both in granule neurons cultured from postnatal rat cerebellar cortex and in cells of the embryonic dorsal rhombic lip, which contain granule neuron precursors. A possible biological function for transglutaminase activity was investigated in living granule neurons, cultured on a biomatrix substratum, studied by time-lapse cinematographic analysis using the transglutaminase inactivator RS-48373-007. ***Inhibition*** of cross-linking activity did not influence the number of neurites formed by granule neurons, but caused the destabilization of neurites during the initial outgrowth period, seen as an increase in the number of growth cone retractions and the onset of premature axon collateral formation (bifurcation). Inactivation of cross-linking activity prevented the formation of fascicles between neurites only when cells were cultured on a biomatrix surface. Two glial proteins involved in cell-***extracellular*** ***matrix*** interactions, midkine and ***galectin*** - ***3*** , were identified as putative substrates for granule neuron transglutaminase.The results suggest that covalent cross-link formation by transglutaminase C or a related enzyme generates multimeric molecular forms of glial-derived proteins, and plays a role in stabilizing newly formed neurites. A possible non-pathological role for transglutaminase in the control of axon collateral branching by developing granule neurons in the cerebellar cortex is discussed.

L5 ANSWER 8 OF 18 MEDLINE DUPLICATE 6
ACCESSION NUMBER: 1998169377 MEDLINE
DOCUMENT NUMBER: 98169377 PubMed ID: 9501082
TITLE: Mac-2 binding protein is a cell-adhesive protein of the extracellular matrix which self-assembles into ring-like structures and binds beta1 integrins, collagens and fibronectin.
AUTHOR: Sasaki T; Brakebusch C; Engel J; Timpl R
CORPORATE SOURCE: Max-Planck-Institut f r Biochemie, D-82152 Martinsried, Germany.
SOURCE: EMBO JOURNAL, (1998 Mar 16) 17 (6) 1606-13.
Journal code: 8208664. ISSN: 0261-4189.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199804
ENTRY DATE: Entered STN: 19980507
Last Updated on STN: 19980507
Entered Medline: 19980424

AB Human Mac-2 binding protein (M2BP) was prepared in recombinant form from the culture medium of 293 kidney cells and consisted of a 92 kDa subunit. The protein was obtained in a native state as indicated by CD spectroscopy, demonstrating alpha-helical and beta-type structure, and by protease resistance and immunological analysis. It was highly modified by N- and O-glycosylation but not by glycosaminoglycans. Ultracentrifugation showed non-covalent association into oligomers with molar masses of 1000-1500 kDa. Electron microscopy showed ring-like shapes with diameters of 30-40 nm. M2BP bound in solid-phase assays to collagens IV, V and VI, fibronectin and nidogen, but not to fibrillar collagens I and III or other basement membrane proteins. The protein also mediated adhesion of cell lines at comparable strength with laminin. Adhesion to M2BP was ***inhibited*** by antibodies to integrin beta1 subunits but not to

alpha2 and alpha6 subunits, RGD peptide or lactose. This distinguishes cell adhesion of M2BP from that of laminin and excludes involvement of lactose-binding ***galectin*** - ***3*** . Immunological assays demonstrated variable secretion by cultured human cells of M2BP, which was detected in the ***extracellular*** ***matrix*** of several mouse tissues.

L5 ANSWER 9 OF 18 MEDLINE DUPLICATE 7
ACCESSION NUMBER: 1999061340 MEDLINE
DOCUMENT NUMBER: 99061340 PubMed ID: 9846883
TITLE: Cell activation by glycated proteins. AGE receptors, receptor recognition factors and functional classification of AGEs.
AUTHOR: Thornalley P J
CORPORATE SOURCE: Department of Biological Sciences, University of Essex, Colchester, UK.
SOURCE: CELLULAR AND MOLECULAR BIOLOGY, (1998 Nov) 44 (7) 1013-23. Ref: 70
Journal code: 9216789. ISSN: 0145-5680.
PUB. COUNTRY: France
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199902
ENTRY DATE: Entered STN: 19990311
Last Updated on STN: 19990311
Entered Medline: 19990222

AB Proteins modified by advanced glycation endproducts (AGE) bind to cell surface receptors and other AGE binding proteins. AGE-binding receptors are: scavenger receptors types I and II, the receptor for advanced glycation endproducts (RAGE), oligosaccharyl transferase-48 (OST-48, AGE-R1), 80K-H phosphoprotein (AGE-R2) and ***galectin*** - ***3*** (AGE-R3). AGE receptors are found in monocytes, macrophages, endothelial cells, pericytes, podocytes, astrocytes and microglia. AGE-modified proteins also bind to lysozyme and lactoferrin. A critical review of the evidence for receptors binding AGE-modified protein binding in vivo is presented. Scavenger receptors have only been shown to bind proteins modified by AGE to a much higher extent than found in vivo. 80K-H phosphoprotein is involved in FGFR3 signal transduction to MAP kinase, and may be involved in AGE-receptor signal transduction. Whether all of these proteins bind AGE-modified proteins in vivo is not yet clear. Cell activation in response to AGE-modified proteins is associated with increased expression of ***extracellular*** ***matrix*** proteins, vascular adhesion molecules, cytokines and growth factors. Depending on the cell type and concurrent signaling, this is associated with chemotaxis, angiogenesis, oxidative stress, cell proliferation or programmed cell death (PCD). Receptor recognition factors for agonism at the AGE receptor have been little studied but to date hydroimidazolones appear to be the most likely candidates. Pharmacologic ***inhibition*** of AGE receptor-mediated cell activation with specific antagonists may provide the basis for therapeutic intervention in diseases where AGE accumulation is a suspected etiological factor vascular complications of diabetes, macrovascular disease, renal insufficiency and Alzheimer's disease.

L5 ANSWER 10 OF 18 MEDLINE DUPLICATE 8
ACCESSION NUMBER: 1998289609 MEDLINE
DOCUMENT NUMBER: 98289609 PubMed ID: 9618290
TITLE: Regulation of cellular adhesion to extracellular matrix proteins by galectin-3.
AUTHOR: Ochieng J; Leite-Browning M L; Warfield P
CORPORATE SOURCE: Department of Biochemistry, Meharry Medical College, Nashville, Tennessee 37208, USA.. ochien10@ccvax.mmc.edu
CONTRACT NUMBER: K14 CA 68281 (NCI)
SOURCE: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (1998 May 29) 246 (3) 788-91.
Journal code: 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English

FILE SEGMENT: Priority Journals
ENTRY MONTH: 199807
ENTRY DATE: Entered STN: 19980716
Last Updated on STN: 19980716
Entered Medline: 19980702

AB The control of cellular adhesion to ***extracellular*** ***matrix*** proteins is poorly understood. In the present analyses, we set out to test the hypothesis that high ***galectin*** - ***3*** concentration on the cell surface downregulates cellular adhesion to the ***extracellular*** ***matrix*** proteins. Various tumor cell lines were briefly incubated without or with ***galectin*** - ***3*** and then allowed to adhere to wells coated with laminin-1, collagen IV and fibronectin. Our data demonstrated that the cells which were incubated with ***galectin*** - ***3*** prior to plating had significantly reduced adhesion to ***extracellular*** ***matrix*** proteins. This ***inhibition*** involved the carbohydrate recognition domain of the lectin because adhesion was achieved in the presence of ***galectin*** - ***3*** and lactose but not ***galectin*** - ***3*** and sucrose. Furthermore we demonstrated that ***galectin*** - ***3*** associates with alpha 1 beta 1 integrin in a lactose dependent manner.

L5 ANSWER 11 OF 18 MEDLINE DUPLICATE 9
ACCESSION NUMBER: 1998126140 MEDLINE
DOCUMENT NUMBER: 98126140 PubMed ID: 9466664
TITLE: Invasion potential and N-acetylgalactosamine expression in a human melanoma model.
AUTHOR: Rye P D; Fodstad O; Emilsen E; Bryne M
CORPORATE SOURCE: Department of Tumour Biology, Institute for Cancer Research, The Norwegian Radium Hospital, Oslo.. prye@radium.uio.no
SOURCE: INTERNATIONAL JOURNAL OF CANCER, (1998 Feb 9) 75 (4) 609-14.
Journal code: 0042124. ISSN: 0020-7136.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199802
ENTRY DATE: Entered STN: 19980306
Last Updated on STN: 19980306
Entered Medline: 19980226

AB Reactivity of the N-acetylgalactosamine-binding Helix pomatia agglutinin (HPA) in tumours has been associated with poor prognosis and metastasis development. In our LOX/FEMX-I human melanoma model, the binding of HPA correlates with experimental lung metastasis formation in athymic nude mice. In the present study, the metastatic potential of 2 human melanoma cell lines (LOX and FEMX-I) was assessed in relation to carbohydrate and invasive phenotype. Immunocytological and invasion assays highlighted significant differences between these 2 cell lines. Immuno-cytochemical analysis confirmed the widespread expression of HPA-binding glycoconjugates on LOX but not FEMX-I cells. One of these HPA-binding glycoconjugates, the Tn antigen, was expressed highly on the surface of LOX cells but only weakly in the cytoplasm of FEMX-I cells. The sialyl Tn antigen was expressed in FEMX-I but not in LOX cells. There was no difference between the cell lines in adhesion/rate of trapping in athymic nude mouse lung tissues. In Matrigel invasion assays, LOX cells demonstrated an invasion potential more than 6 times greater than that observed with FEMX-I cells. Matrigel invasion of LOX cells was ***inhibited*** after incubation with HPA (89%) compared to controls with HPA and GalNAc blocking sugar or without HPA ($p < 0.0005$ at 5 df). In contrast, there was no ***inhibitory*** effect with the anti-Tn antibody IE3. Invasion of FEMX-I cells was not affected by the lectin and the IE3 antibody. Immuno-cytochemical analysis revealed expression of the terminal galactose- and polylactosamine-binding lectin ***galectin*** ***3*** (Mac-2) in these melanoma cell lines. Expression of both the lectin and its receptor may be a contributory feature in the pulmonary invasion of LOX melanoma cells. Overall, our findings suggest that HPA-binding glycoconjugates other than the alphaGalNAc-O-Ser/Thr of the Tn antigen may be important in the ***extracellular*** ***matrix*** invasion of LOX melanoma cells.

L5 ANSWER 12 OF 18 MEDLINE DUPLICATE 10
ACCESSION NUMBER: 1998111032 MEDLINE
DOCUMENT NUMBER: 98111032 PubMed ID: 9450571
TITLE: Preferential adhesion of prostate cancer cells to a human bone marrow endothelial cell line.
COMMENT: Comment in: J Natl Cancer Inst. 1998 Apr 1;90(7):547
Comment in: J Natl Cancer Inst. 1998 Jan 21;90(2):84-5
AUTHOR: Lehr J E; Pienta K J
CORPORATE SOURCE: University of Michigan Comprehensive Cancer Center, Department of Internal Medicine, Ann Arbor 48109-0946, USA.
CONTRACT NUMBER: CA60156 (NCI)
CA69568 (NCI)
SOURCE: JOURNAL OF THE NATIONAL CANCER INSTITUTE, (1998 Jan 21) 90 (2) 118-23.
Journal code: 7503089. ISSN: 0027-8874.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199802
ENTRY DATE: Entered STN: 19980224
Last Updated on STN: 19990129
Entered Medline: 19980210

AB BACKGROUND: In virtually all patients with advanced prostate cancer, the disease metastasizes to bone and causes osteoblastic growth. However, the mechanisms that contribute to bone metastasis are poorly understood. It has been hypothesized that the bone provides a favorable growth environment for prostate cancer cells, which nonselectively seed the bone marrow from the bloodstream. Alternatively, prostate cancer cells may preferentially bind to bone marrow endothelial cells. We developed an in vitro model of bone endothelium and tested the hypothesis that prostate cancer cells adhere preferentially to bone marrow endothelial cells. METHODS: We isolated and characterized a human bone marrow endothelial (HBME-1) cell line. Cells were transfected with the simian virus 40 large T antigen for immortalization. Cell surface receptors were characterized by immunohistochemistry and flow cytometry. The adhesion of cancer cells to HBME-1 and to endothelial cell lines from other organs was tested in an in vitro binding assay as were ***inhibitors*** of adhesion. RESULTS: The immortalized HBME-1 cell line demonstrated many properties characteristic of endothelial cells, including positive staining for von Willibrand factor and rapid formation of tubule structures when exposed to ***extracellular*** ***matrices*** . In an in vitro assay, prostate cancer cells adhered preferentially to human bone marrow endothelium when compared with endothelium derived from other sources. Preferential adhesion was blocked, in part, by antibodies to ***galectin*** - ***3*** and LFA-1. IMPLICATIONS: These data suggest that the propensity of prostate cancer cells to establish themselves in bone is due, at least in part, to their preferential adhesion to human bone marrow endothelial cells.

L5 ANSWER 13 OF 18 MEDLINE DUPLICATE 11
ACCESSION NUMBER: 97385520 MEDLINE
DOCUMENT NUMBER: 97385520 PubMed ID: 9241534
TITLE: Galectin-3 inhibits granulocyte-macrophage colony-stimulating factor (GM-CSF)-driven rat bone marrow cell proliferation and GM-CSF-induced gene transcription.
AUTHOR: Krugluger W; Frigeri L G; Lucas T; Schmer M; Forster O; Liu F T; Boltz-Nitulescu G
CORPORATE SOURCE: Institute of General and Experimental Pathology, Vienna, Austria.
CONTRACT NUMBER: AI 20958 (NIAID)
AI 32834 (NIAID)
SOURCE: IMMUNOBIOLOGY, (1997 Jun) 197 (1) 97-109.
Journal code: 8002742. ISSN: 0171-2985.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199708
ENTRY DATE: Entered STN: 19970916
Last Updated on STN: 19970916
Entered Medline: 19970829

AB The expression of ***galectin*** - ***3*** (formerly known as IgE-binding protein or Mac-[redacted]in rat bone marrow (BM) was in[redacted]tigated by FACS, immunocytochemical and immunoblot analysis. The functional significance of rat recombinant ***galectin*** - ***3*** on mouse recombinant granulocyte-macrophage colony-stimulating factor (GM-CSF)-driven proliferation of macrophage progenitors and gene transcription was further examined. Immunocytochemical analysis of in situ BM sections demonstrated ***galectin*** - ***3*** in myelopoietic cells and surrounding stroma, whereas erythropoietic and lymphopoietic environments essentially lacked ***galectin*** - ***3*** expression. FACS analysis demonstrated that incubation of freshly isolated BMC with lactose, a competing ligand for ***galectin*** - ***3*** binding to glycoconjugates, decreased binding of antigalectin antibodies to cells primarily expressing the myeloid antigen recognized by mAb His-54. Similarly, lectin-mediated binding of exogenous ***galectin*** - ***3*** to myeloid lineage cells was also demonstrated. Immunoblot analysis of BM eluates demonstrated ***galectin*** - ***3*** both in the ***extracellular*** ***matrix*** and in a lactose elutable form, bound to the surface of BMC. [3H]Thymidine incorporation studies on BMC cultured in the presence of ***galectin*** - ***3*** demonstrated suppression of GM-CSF-induced proliferation by ***galectin*** - ***3*** . In addition, differential display analysis of immediate early gene expression in BMC cultured in the presence of ***galectin*** - ***3*** revealed a 76.2% ***inhibition*** of GM-CSF-induced gene transcription by ***galectin*** - ***3*** assessed by the number of PCR-fragments generated. Our data suggest a role for ***galectin*** - ***3*** in the organization of myelopoietic compartments in rat BM and regulation of the action of growth factors on myelopoietic precursor cells.

L5 ANSWER 14 OF 18 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1996:217993 CAPLUS
TITLE: Role of galectin-3 in the attachment of cells to extracellular matrixes.
AUTHOR(S): Lawrence, Cynthia D.; Ochieng, Josiah
CORPORATE SOURCE: Div. Science and Math, Rust College, Holly Springs, MS, 38635, USA
SOURCE: Book of Abstracts, 211th ACS National Meeting, New Orleans, LA, March 24-28 (1996), CHED-147. American Chemical Society: Washington, D. C.
CODEN: 62PIAJ
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB The study of cell attachment to ***extracellular*** ***matrixes*** is very interesting. We questioned whether ***galectin*** - ***3*** has a possible role in the attachment of cells to ***extracellular*** ***matrixes*** . ***Galectin*** - ***3*** is a sugar binding lectin contg. a collagen-like sequence that has been identified in human tumor cells. ***Extracellular*** ***matrixes*** are several different structures such as laminin, fibronectin, and collagen type IV. A lectin such as ***galectin*** - ***3*** modulates the attachment to ***extracellular*** ***matrixes*** . We performed several expts. such as the construction of the expression gene in the E. coli bacteria, isolation and purifn. of ***galectin*** - ***3*** which was produced by the bacteria, a hemagglutination assay was done to show whether the protein was present, electron microscopy (dialysis), and a gel filtration column was run. After performing these expts., it can be detd. whether ***galectin*** - ***3*** has a roll in cell attachment to ***extracellular*** ***matrixes*** . Using serial dilns. of the concd. protein stock, we found that in increased concns., the ***galectin*** - ***3*** ***inhibited*** attachment. These results were ideal in suggesting that this protein (***galectin*** - ***3***) does affect cell attachment to ***extracellular*** ***matrixes*** .

L5 ANSWER 15 OF 18 MEDLINE DUPLICATE 12
ACCESSION NUMBER: 96034317 MEDLINE
DOCUMENT NUMBER: 96034317 PubMed ID: 7593320
TITLE: Galectin-3 expression and effects on cyst enlargement and tubulogenesis in kidney epithelial MDCK cells cultured in three-dimensional matrices in vitro.
AUTHOR: Bao Q; Hughes R C

CORPORATE SOURCE: National Institute for Medical Research, Mill Hill, London, UK.
SOURCE: JOURNAL OF CELL SCIENCE, (1995 Aug) 108 (Pt 8) 2791-800.
Journal code: 0052457. ISSN: 0021-9533.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199512
ENTRY DATE: Entered STN: 19960124
Last Updated on STN: 19970203
Entered Medline: 19951215

AB ***Galectin*** - ***3*** is a member of a closely related family of beta-galactoside-binding soluble proteins found in many vertebrate epithelial and myeloid cell types. The developmentally regulated presence of ***galectin*** - ***3*** in tissues, for example kidney, and an affinity for many cell-surface and matrix glycoproteins indicate its importance in extracellular biological processes. Since a polarised expression and secretion of ***galectin*** - ***3*** was observed in monolayer-cultured MDCK cells, an understanding of the secretion and distribution of this lectin in a three-dimensional in vitro model would help to uncover its role(s) in the interplay between cell-surface adhesion molecules and ***extracellular*** ***matrix*** components occurring during cell aggregation and polarisation in tissue formation. In this study, the cellular distribution and secretion of ***galectin*** - ***3*** were examined in MDCK cells cultured within a gel matrix. MDCK cells were cultured within type I collagen or Matrigel to obtain multicellular cysts, and tubule formation was induced in collagen gels with hepatocyte growth factor. Immunofluorescent staining of these structures using antibodies against ***galectin*** - ***3*** and other cell-surface domain markers was carried out either in situ or on cryosections and was visualised by confocal and conventional epifluorescence microscopy. Our results show that MDCK cells suspended in hydrated collagen gels or Matrigel exhibit differential and polarised ***galectin*** - ***3*** expression on the baso-lateral surface domains of cells lining the cysts. The lectin is colocalised with laminin on the basal surface. In tubule-forming cysts, ***galectin*** - ***3*** is excluded from the initial spikes and the progressing tips of the tubules although its basolateral expression on the cyst body remains. ***Galectin*** - ***3*** added exogenously to cultures, as well as antibodies against laminin subunits and integrin beta 1 subunit, exerted an ***inhibitory*** effect on cyst enlargement of MDCK cells in 3-D Matrigel while ***galectin*** - ***3*** -specific antibodies could promote this process. The results suggest that ***galectin*** - ***3*** exerts its effect on MDCK cells in a three-dimensional environment through modulation of both cell-cell and cell-substratum adhesions, and the interplay between these adhesions is important in the growth of multicellular aggregates and extensions occurring during normal kidney tubulogenesis.

L5 ANSWER 16 OF 18 MEDLINE DUPLICATE 13
ACCESSION NUMBER: 95279975 MEDLINE
DOCUMENT NUMBER: 95279975 PubMed ID: 7539053
TITLE: Galectin-3, a beta-galactoside-binding animal lectin, binds to neural recognition molecules.
AUTHOR: Probstmeier R; Montag D; Schachner M
CORPORATE SOURCE: Department of Neurobiology, Swiss Federal Institute of Technology, Zurich.
SOURCE: JOURNAL OF NEUROCHEMISTRY, (1995 Jun) 64 (6) 2465-72.
Journal code: 2985190R. ISSN: 0022-3042.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199506
ENTRY DATE: Entered STN: 19950707
Last Updated on STN: 19970203
Entered Medline: 19950628

AB In this study, we have investigated the ability of ***galectin*** - ***3*** , a beta-galactoside-binding animal lectin, to interact in vitro with different neural tissue-derived glycoproteins involved in cell-cell and cell-substrate adhesion. ***Galectin*** - ***3*** interacted to

varying degrees with the cell recognition molecules L1, the myelin-associated glycoprotein, and the neural cell adhesion molecule and the ***extracellular*** ***matrix*** molecules tenascin-C and tenascin-R but not with collagen type I. Binding of ***galectin*** - ***3*** to the different glycoproteins tested was carbohydrate dependent and could be specifically ***inhibited*** by the addition of lactose and, to a lesser extent, galactose.

L5 ANSWER 17 OF 18 MEDLINE DUPLICATE 14
ACCESSION NUMBER: 95210903 MEDLINE
DOCUMENT NUMBER: 95210903 PubMed ID: 7696855
TITLE: Effects of natural complex carbohydrate (citrus pectin) on murine melanoma cell properties related to galectin-3 functions.
AUTHOR: Inohara H; Raz A
CORPORATE SOURCE: Cancer Metastasis Program, Michigan Cancer Foundation, Detroit 48201.
CONTRACT NUMBER: R01-CA46120 (NCI)
SOURCE: GLYCOCONJUGATE JOURNAL, (1994 Dec) 11 (6) 527-32. Journal code: 8603310. ISSN: 0282-0080.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199505
ENTRY DATE: Entered STN: 19950510
Last Updated on STN: 19980206
Entered Medline: 19950504
AB Citrus pectin (CP) and pH-modified citrus pectin (MCP) are highly branched and non-branched complex polysaccharides, respectively, rich in galactoside residues, capable of combining with the carbohydrate-binding domain of ***galectin*** - ***3*** . We reported previously that intravenous injection of B16-F1 murine melanoma cells with CP or MCP into syngeneic mice resulted in a significant increase or decrease of lung colonization, respectively (Platt D, Raz A (1992) J Natl Cancer Inst 84:438-42). Here we studied the effects of these polysaccharides on cell-cell and cell-matrix interactions mediated by carbohydrate-recognition. MCP, but not CP, ***inhibited*** B16-F1 melanoma cells adhesion to laminin and asialofetuin-induced homotypic aggregation. Both polysaccharides ***inhibited*** anchorage-independent growth of B16-F1 cells in semisolid medium, i.e. agarose. These results indicate that carbohydrate-recognition by cell surface ***galectin*** - ***3*** may be involved in cell- ***extracellular*** ***matrix*** interaction and play a role in anchorage-independent growth as well as the in vivo embolization of tumour cells.

L5 ANSWER 18 OF 18 MEDLINE DUPLICATE 15
ACCESSION NUMBER: 95210895 MEDLINE
DOCUMENT NUMBER: 95210895 PubMed ID: 7696849
TITLE: Expression of galectins on microvessel endothelial cells and their involvement in tumour cell adhesion.
AUTHOR: Lotan R; Belloni P N; Tressler R J; Lotan D; Xu X C; Nicolson G L
CORPORATE SOURCE: Department of Tumor Biology, University of Texas, M.D. Anderson Cancer Center, Houston 77030.
CONTRACT NUMBER: CA39319 (NCI)
P30-CA16672 (NCI)
R35-CA44352 (NCI)
SOURCE: GLYCOCONJUGATE JOURNAL, (1994 Oct) 11 (5) 462-8. Journal code: 8603310. ISSN: 0282-0080.
PUB. COUNTRY: ENGLAND: United Kingdom
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199505
ENTRY DATE: Entered STN: 19950510
Last Updated on STN: 19970203
Entered Medline: 19950504
AB Lactoside-binding lectins (galectins) with molecular weights of about 14.5 kDa (galectin-1) and 29-35 kDa (***galectin*** - ***3***) bind preferentially to polylactosaminoglycan-containing glycoconjugates and have been found on the surface of tumour cells and implicated in cell-cell

and cell- ***extracellular*** ***matrix*** adhesion and metastasis. We have demonstrated by immunoblotting that both galectin-1 and ***galectin*** - ***3*** are present in extracts of endothelial cells cultured from bovine aorta, rat lung, mouse lung and mouse brain microvessels, whereas mouse hepatic sinusoidal endothelial cells expressed primarily galectin-1. These galectins were also localized by indirect immunofluorescent labelling on the surface of the different endothelial cells in culture and by immunohistochemical staining in human tissues in vivo. Anti-galectin-1 antibodies ***inhibited*** the adhesion of liver-preferring murine RAW117-H10 large-cell lymphoma cells to hepatic sinusoidal endothelial cells or lung microvessel endothelial cells in vitro. The data indicate that galectin-1 is expressed on the extracellular surface of endothelial cells and can mediate in part the adhesion of RAW117-H10 cells to liver microvessel endothelial cells.

```
=> d his

     (FILE 'HOME' ENTERED AT 15:05:48 ON 17 JUN 2002)

     FILE 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH, AGRICOLA' ENTERED AT
     15:06:14 ON 17 JUN 2002
L1          1735 S GALECTIN-3
L2        148171 S EXTRACELLULAR MATRIX
L3           213 S L1 (P) L2
L4            73 S L3 (P) INHIBIT?
L5            18 DUPLICATE REMOVE L4 (55 DUPLICATES REMOVED)

=> s l1 (a) binding
L6           107 L1 (A) BINDING

=> s l6 (p) inhibit?
L7            34 L6 (P) INHIBIT?

=> duplicate remove l7
DUPLICATE PREFERENCE IS 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH'
KEEP DUPLICATES FROM MORE THAN ONE FILE?  Y/(N):n
PROCESSING COMPLETED FOR L7
L8            10 DUPLICATE REMOVE L7 (24 DUPLICATES REMOVED)

=> s l8 not l5
L9             7 L8 NOT L5

=> d l9 1-7 ibib abs

L9   ANSWER 1 OF 7     MEDLINE
ACCESSION NUMBER:    2002192081     IN-PROCESS
DOCUMENT NUMBER:     21916672   PubMed ID: 11921396
TITLE:               Low micromolar inhibitors of galectin-3 based on
                     3'-derivatization of N-acetyllactosamine.
AUTHOR:              Sorme Pernilla; Qian Yuning; Nyholm Per-Georg; Leffler
                     Hakon; Nilsson Ulf J
CORPORATE SOURCE:    Section MIG (Microbiology, Immunology, Glycobiology), Dept.
                     of Laboratory Medicine, Lund University, Solvegatan 23,
                     22362 Lund, Sweden.
SOURCE:              Chembiochem, (2002 Mar 1) 3 (2-3) 183-9.
                     Journal code: 100937360. ISSN: 1439-4227.
PUB. COUNTRY:        Germany: Germany, Federal Republic of
                     Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:            English
FILE SEGMENT:        IN-PROCESS; NONINDEXED; Priority Journals
ENTRY DATE:          Entered STN: 20020403
                     Last Updated on STN: 20020403
AB   A strategy for generating potential galectin ***inhibitors*** was
     devised based on derivatization at the C-3' atom in 3'-amino-N-
     acetyllactosamine by using structural knowledge of the galectin
     carbohydrate recognition site. A collection of 12 compounds was prepared
     by N-acylations or N-sulfonylations. Hydrophobic tagging of the O-3 atom
     in the N-acetylglucosamine residue with a stearic ester allowed rapid and
     simple product purification. The compounds were screened in a
     ***galectin*** - ***3*** ***binding*** assay and three compounds
     with significantly higher ***inhibitory*** activities compared to the
```

parent N-acetyllactosaminide were found. These three best ***inhibitors*** all carried an aromatic amide at the C- position of the galactose moiety, which indicates that favorable interactions were formed between the aromatic group and galectin-3. The best ***inhibitor*** had an IC50 value (4.4 microM) about 50 times better than the parent N-acetyllactosaminide, which implies that it has potential as a valuable tool for studying galectin-3 biological functions and also as a lead compound for the development of galectin-3-blocking pharmaceuticals.

L9 ANSWER 2 OF 7 MEDLINE
ACCESSION NUMBER: 2001558023 MEDLINE
DOCUMENT NUMBER: 21490196 PubMed ID: 11604988
TITLE: Role of galectin-3 in adenocarcinoma liver metastasis.
AUTHOR: Inufusa H; Nakamura M; Adachi T; Aga M; Kurimoto M; Nakatani Y; Wakano T; Miyake M; Okuno K; Shiozaki H; Yasutomi M
CORPORATE SOURCE: The First Department of Surgery, Kinki University School of Medicine, Osaka 589-8511, Japan.. inufusa@surg1.med.kindai.ac.jp
SOURCE: INTERNATIONAL JOURNAL OF ONCOLOGY, (2001 Nov) 19 (5) 913-9. Journal code: 9306042. ISSN: 1019-6439.
PUB. COUNTRY: Greece
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200203
ENTRY DATE: Entered STN: 20011018
Last Updated on STN: 20020314
Entered Medline: 20020313

AB Galectin-3 is a lactosamine-specific lectin that binds to laminin sugar-sites, and up-regulated expression of galectin-3 in primary colorectal cancer is involved in cancer progression and metastasis. ***Inhibitory*** effects of cell adhesion and liver metastasis of adenocarcinoma via portal vein by lectin-binding sugar and anti-galectin-3 antibody was examined to determine the role of galectin-laminin binding in cancer liver metastasis. Highly metastatic adenocarcinoma cell lines XK4-A3 and RPMI4788 were used in in vitro cell attachment and nude mice liver metastatic experiments, and ***inhibitory*** effects of anti-galectin-3 antibody or lectin-binding sugars were examined. The in vitro adhesion assay demonstrated that the anti-galectin-3 antibody and alpha-lactose ***inhibited*** XK4-A3 and RPMI4788 cell adhesion to laminin in a dose-dependent manner. The liver metastasis of XK4-A3 and RPMI4788 was reduced 50 and 60%, respectively ($P<0.001$) by alpha-lactose treatment. Anti-galectin-3 antibody also ***inhibited*** liver metastasis in a dose-dependent manner, and maximum ***inhibition*** rate was 66% for XK4-A3 and 90% for RPMI4788. Galectin-3 plays an important role in liver metastasis of adenocarcinoma by the mechanisms of ***galectin*** - ***3*** ***binding*** to laminin. ***Inhibition*** of galectin-3 on cancer cell surface induces reduced cell attachment to laminin and liver metastasis.

L9 ANSWER 3 OF 7 MEDLINE
ACCESSION NUMBER: 2001079845 MEDLINE
DOCUMENT NUMBER: 21017431 PubMed ID: 11145021
TITLE: Retrotransposable L1 elements expressed in rheumatoid arthritis synovial tissue: association with genomic DNA hypomethylation and influence on gene expression.
AUTHOR: Neidhart M; Rethage J; Kuchen S; Kunzler P; Crowl R M; Billingham M E; Gay R E; Gay S
CORPORATE SOURCE: Center for Experimental Rheumatology, Department of Rheumatology, University Hospital, Zurich, Switzerland.
SOURCE: ARTHRITIS AND RHEUMATISM, (2000 Dec) 43 (12) 2634-47. Journal code: 0370605. ISSN: 0004-3591.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Abridged Index Medicus Journals; Priority Journals
ENTRY MONTH: 200101
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010111

AB OBJECTIVE: Rheumatoid arthritis (RA) is characterized by a progressive destruction of joints by invasive synovial fibroblasts (SF). We searched for retroviral sequences in RA synovial fluid pellets, identified a sequence similar to that of open reading frame 2 (ORF2)/L1 retrotransposable elements, explored the expression of L1 in RA synovial tissues and cultured RA SF, and investigated the link to genomic DNA hypomethylation and the influence of functional L1 on gene expression. METHODS: RA synovial fluid pellets were screened by reverse transcriptase-polymerase chain reaction (RT-PCR) using degenerated pol primers. The sequences were identified by GenBank search. Riboprobes to ORF2/L1 and galectin-3 and antibodies to the ORF1/L1-related p40 protein were used for in situ hybridization and immunohistochemistry of synovial tissues and cultured RA SF. Real-time quantitative RT-PCR was used for detecting ORF1 messenger RNA (mRNA). Since DNA hypomethylation occurs in inflammatory diseases, we incubated cells with the methylation ***inhibitor*** 5-aza-2'-deoxycytidine (5-azaC) and compared RA SF and osteoarthritis (OA) SF. L1-negative RA SF were transfected with the functional L1.2 construct, and differential gene expression was analyzed by subtractive hybridization combined with nested PCR. RESULTS: RNA sequences similar to those of ORF2/L1 retrotransposable elements, THE1 transposon, human endogenous retrovirus (ERV)-E, human ERV-HC2, and gibbon ape leukemia virus pol genes were isolated from different RA synovial fluid pellets. In RA synovial tissues, ORF2/L1 transcripts were detected in the sublining layer and at sites of cartilage and bone destruction. Galectin-3 mRNA and L1-related ORF1/ p40 protein showed similar expression patterns. In contrast, OA synovial tissues in situ and cultures in vitro were negative. Real-time quantitative RT-PCR confirmed the presence of ORF1 mRNA in cultured RA SF (30-300-fold the amount in normal SF), demonstrating the existence of a nondegenerated and functional L1 element. In vitro, the majority of RA SF expressed ORF2/L1 mRNA. After incubation of SF with 5-azaC, L1 mRNA appeared in a time- and dose-dependent manner. Compared with OA SF, RA SF were more sensitive to 5-azaC. After transfection of RA SF with a functional L1.2 element, human stress-activated protein kinase 2 delta (SAPK2delta [or SAPK4]), met protooncogene, and ***galectin*** - ***3*** ***binding*** protein genes were differentially expressed. The transcription of the SAPK2delta gene, favored also by DNA hypomethylation in vitro, was confirmed in RA synovial tissues. CONCLUSION: Taken together, these data suggest that L1 elements and SAPK2delta pathways play a role in the activation of RA SF.

L9 ANSWER 4 OF 7 MEDLINE
ACCESSION NUMBER: 96095671 MEDLINE
DOCUMENT NUMBER: 96095671 PubMed ID: 8526926
TITLE: Galectin-3 is a nuclear matrix protein which binds RNA.
AUTHOR: Wang L; Inohara H; Pienta K J; Raz A
CORPORATE SOURCE: Tumor Progression and Metastasis, karmanos Cancer Institute, Detroit, MI 48201, USA.
CONTRACT NUMBER: CA57453 (NCI)
CA60156 (NCI)
R01-CA46120 (NCI)
SOURCE: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (1995 Dec 5) 217 (1) 292-303.
Journal code: 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199601
ENTRY DATE: Entered STN: 19960219
Last Updated on STN: 19970203
Entered Medline: 19960119

AB The endogenous galectin-3 is a carbohydrate-binding protein of M(r) approximately 30,000 serving in the cytoplasm and on the cell surface as a receptor for ligands containing poly-N-acetyllactosamine sequences. In addition, galectin-3 has been demonstrated to be associated in the nucleus with ribonucleoprotein complexes and to act as a pre-mRNA splicing factor and to be involved in spliceosome assembly. However, little is known about either its nuclear localization or its ligand(s), respectively. We demonstrate directly here that galectin-3 is associated with the RNA protein skeleton of the nucleus, i.e., the nuclear matrix, and binds with single-stranded DNA (ssDNA) and with RNA. The affinity of binding was

determined to be 2.3 microM Lactose, which ***inhibits*** ***galectin*** - ***3*** ***binding*** to glycoconjugates, failed to ***inhibit*** either galectin-3-ssDNA or galectin-3-RNA ***binding*** . ***Galectin*** - ***3*** exhibited the highest affinity to poly(A) ribonucleotide homopolymers. The results presented here shows that galectin-3 may act as a RNA-binding protein in the nuclear matrix in a non-carbohydrate-dependent manner.

L9 ANSWER 5 OF 7 MEDLINE
ACCESSION NUMBER: 95156501 MEDLINE
DOCUMENT NUMBER: 95156501 PubMed ID: 7853416
TITLE: Inhibition of spontaneous metastasis in a rat prostate cancer model by oral administration of modified citrus pectin.
COMMENT: Comment in: J Natl Cancer Inst. 1995 MAr 1;87(5):331-2
AUTHOR: Pienta K J; Naik H; Akhtar A; Yamazaki K; Replogle T S; Lehr J; Donat T L; Tait L; Hogan V; Raz A
CORPORATE SOURCE: Division of Hematology and Oncology, Wayne State University School of Medicine, Detroit, Mich.
CONTRACT NUMBER: CA46120 (NCI)
CA57453 (NCI)
CA60156 (NCI)
SOURCE: JOURNAL OF THE NATIONAL CANCER INSTITUTE, (1995 Mar 1) 87 (5) 348-53.
Journal code: 7503089. ISSN: 0027-8874.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199503
ENTRY DATE: Entered STN: 19950322
Last Updated on STN: 19950322
Entered Medline: 19950316

AB BACKGROUND: Prostate cancer is the most common cancer diagnosed in U.S. men and remains incurable once it has metastasized. Many stages of the metastatic cascade involve cellular interactions mediated by cell surface components, such as carbohydrate-binding proteins, including galactoside-binding lectins (galectins). Modified citrus pectin (pH-modified), a soluble component of plant fiber derived from citrus fruit, has been shown to interfere with cell-cell interactions mediated by cell surface carbohydrate- ***binding*** ***galectin*** - ***3*** molecules. PURPOSE: The aim of this study was to determine whether modified citrus pectin, a complex polysaccharide rich in galactosyl residues, could ***inhibit*** spontaneous metastasis of prostate adenocarcinoma cells in the rat. METHODS: The ability of modified citrus pectin to ***inhibit*** the adhesion of Dunning rat prostate cancer MAT-LyLu cells to rat endothelial cells was measured by 51Cr-labeling. Modified citrus pectin ***inhibition*** of MAT-LyLu cell anchorage-independent growth was measured by colony formation in agarose. The presence of galectin-3 in rat MAT-LyLu cells and human prostate carcinoma was demonstrated by immunoblotting and immunohistochemistry. One million MAT-LyLu cells were injected subcutaneously into the hind limb of male Copenhagen rats on day 0. Rats were given 0.0%, 0.01%, 0.1%, or 1.0% (wt/vol) modified citrus pectin continuously in their drinking water (from day 4 until necropsy on day 30). The number of MAT-LyLu tumor colonies in the lungs were counted. RESULTS: Compared with 15 or 16 control rats that had lung metastases on day 30, seven of 14 rats in the 0.1% and nine of 16 rats in the 1.0% modified citrus-pectin group had statistically significant (two-sided; $P < .03$ and $P < .001$, respectively) reductions in lung metastases. The lungs of the 1.0% modified citrus pectin-treated rats had significantly (two-sided; $P < .05$) fewer metastatic colonies than control groups (9 colonies +/- 4 [mean +/- SE] in the control group compared with 1 colony +/- 1 in the treated group). Modified citrus pectin had no effect on the growth of the primary tumors. In vitro, modified citrus pectin ***inhibited*** MAT-LyLu cell adhesion to rat endothelial cells in a time- and dose-dependent manner as well as their colony formation in semisolid medium. CONCLUSIONS: We present a novel therapy in which oral intake of modified citrus pectin acts as a potent ***inhibitor*** of spontaneous prostate carcinoma metastasis in the Copenhagen rat. IMPLICATIONS: Further investigations are warranted to determine the following: 1) the role of galectin-3 in normal and cancerous prostate tissues and 2) the ability of modified citrus pectin to

inhibit human prostate metastasis in nude mice.

L9 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1999:550374 CAPLUS
DOCUMENT NUMBER: 132:93570
TITLE: Scope of multivalent ligand function. Lactose-bearing neoglycopolymers by ring-opening metathesis polymerization
AUTHOR(S): Pohl, Nicola L.; Kiessling, Laura L.
CORPORATE SOURCE: Dep. Chemistry, Univ. Wisconsin, Madison, WI, 53706, USA
SOURCE: Synthesis (1999), (Spec. Iss.), 1515-1519
CODEN: SYNTBF; ISSN: 0039-7881
PUBLISHER: Georg Thieme Verlag
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An understanding of both monovalent and multivalent carbohydrate-protein interactions is required for the design of effective ***inhibitors*** of protein-saccharide interactions. Here, a lactose-bearing norbornene imide template was polymd. using the Ru alkylidene catalyst, (Cy3P)2Cl2Ru:CHPh, to produce a lactose-substituted neoglycopolymer. The resulting polymer showed a 100-fold overall increase in ***inhibitory*** potency (5-fold increase on a per saccharide residue basis) compared to monomeric lactose in both a ***galectin*** ***3*** - ***binding*** assay and an Erythrina corallodendrum hemagglutination assay with its lactose-binding lectin.
REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1995:579618 CAPLUS
DOCUMENT NUMBER: 123:6291
TITLE: Galectin-3, a .beta.-galactoside-binding animal lectin, binds to neural recognition molecules
AUTHOR(S): Probstmeier, Rainer; Montag, Dirk; Schachner, Melitta
CORPORATE SOURCE: Dep. Neurobiology, Swiss Federal Inst. Technology, Zuerich, Switz.
SOURCE: J. Neurochem. (1995), 64(6), 2465-72
CODEN: JONRA9; ISSN: 0022-3042
DOCUMENT TYPE: Journal
LANGUAGE: English
AB In this study, we have investigated the ability of galectin-3, a .beta.-galactoside-binding animal lectin, to interact in vitro with different neural tissue-derived glycoproteins involved in cell-cell and cell-substrate adhesion. Galectin-3 interacted to varying degrees with the cell recognition mols. L1, the myelin-assocd. glycoprotein, and the neural cell adhesion mol. and the extracellular matrix mols. tenascin-C and tenascin-R but not with collagen type I. Binding of galectin-3 to the different glycoproteins tested was carbohydrate dependent and could be specifically inhibited by the addn. of lactose and, to a lesser extent, galactose.

=> d his

(FILE 'HOME' ENTERED AT 15:05:48 ON 17 JUN 2002)

FILE 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH, AGRICOLA' ENTERED AT 15:06:14 ON 17 JUN 2002
L1 1735 S GALECTIN-3
L2 148171 S EXTRACELLULAR MATRIX
L3 213 S L1 (P) L2
L4 73 S L3 (P) INHIBIT?
L5 18 DUPLICATE REMOVE L4 (55 DUPLICATES REMOVED)
L6 107 S L1 (A) BINDING
L7 34 S L6 (P) INHIBIT?
L8 10 DUPLICATE REMOVE L7 (24 DUPLICATES REMOVED)
L9 7 S L8 NOT L5

=> s galectin 3
L10 1735 GALECTIN 3

```
=> s (glomerular nephritis) or (diabetic nephropathy) or (tissue fibrosis)
L11      35880 (GLOMERULAR NEPH[redacted]IS) OR (DIABETIC NEPHROPATHY) [redacted](TISSUE
               FIBROSIS)

=> s l11 (p) l2
L12       1086 L11 (P) L2

=> s l12 (p) l1
L13          2 L12 (P) L1

=> duplicate remove l13
PROCESSING COMPLETED FOR L13
L14           2 DUPLICATE REMOVE L13 (0 DUPLICATES REMOVED)

=> s l14 not (l5 or l9)
L15          0 L14 NOT (L5 OR L9)

=> d his

     (FILE 'HOME' ENTERED AT 15:05:48 ON 17 JUN 2002)

     FILE 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH, AGRICOLA' ENTERED AT
     15:06:14 ON 17 JUN 2002
L1         1735 S GALECTIN-3
L2       148171 S EXTRACELLULAR MATRIX
L3          213 S L1 (P) L2
L4           73 S L3 (P) INHIBIT?
L5           18 DUPLICATE REMOVE L4 (55 DUPLICATES REMOVED)
L6          107 S L1 (A) BINDING
L7           34 S L6 (P) INHIBIT?
L8           10 DUPLICATE REMOVE L7 (24 DUPLICATES REMOVED)
L9            7 S L8 NOT L5
L10        1735 S GALECTIN 3
L11       35880 S (GLOMERULAR NEPHRITIS) OR (DIABETIC NEPHROPATHY) OR (TISSUE F
L12        1086 S L11 (P) L2
L13           2 S L12 (P) L1
L14           2 DUPLICATE REMOVE L13 (0 DUPLICATES REMOVED)
L15           0 S L14 NOT (L5 OR L9)

=> log y
COST IN U.S. DOLLARS                            SINCE FILE      TOTAL
                                                  ENTRY    SESSION
FULL ESTIMATED COST                               49.29      49.50

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)      SINCE FILE      TOTAL
                                                  ENTRY    SESSION
CA SUBSCRIBER PRICE                               -3.10      -3.10

STN INTERNATIONAL LOGOFF AT 15:14:09 ON 17 JUN 2002
```